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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/684,083	**Applicant(s)** ROSSNER ET AL.	
	Examiner Karabi Guharay	**Art Unit** 2889	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Amendment, filed on 7/18/2008*.
2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 25-38* is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☒ Claim(s) *30 and 38* is/are allowed.
6)☒ Claim(s) *1 and 25-39* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☒ All b)☐ Some * c)☐ None of:
    1.☒ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
  Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Amendment

Amendment, filed on 7/18/2008, has been considered and entered.

Claim 30 has been amended. New claims 36-38 are added.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 28 & 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 28 & 37 recites the limitation "the impurity crystallites". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 25-29, 31-34 & 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiang et al. (US 6703780).

Regarding claim 1, Shiang et al. disclose a conversion LED (Figs 1-3) comprising one light emitting diode (OLED) for emitting a primary radiation, and at least one luminescence conversion body (3) for converting the primary radiation into a secondary radiation,(lines 24-32 of column 7) wherein the luminescence conversion body is a polycrystalline ceramic body formed by sintering (lines 57-58 of column 16)) individual base crystallites (lines 24-55 of column 16) and that is doped by a dopant (Ce) such that the polycrystalline ceramic body acts as luminescent material by virtue of at least of the base material (YAG) being activated by the dopant (lines 24-61 of column 7), wherein the ceramic body has a ceramic density of above 90% and wherein the ceramic body is translucent to both the primary and secondary radiation (lines 36-47 of column 4), and wherein the ceramic body is larger than the OLED(see Fig 10) and the ceramic body and the OLED are disposed directly on one another or are connected together by an adhesive (lines 62-65 of column 6).

But Shiang et al. use organic material imposed between two electrodes of the light emitting diode instead of using semiconductor materials such as GaN interposed between two electrodes of a light emitting diode.

Light emitting diodes using semiconductor materials such as GaN or organic light emitting diodes both are widely used as light source.

Further, it is noted that applicant's specific semiconductor material for LED does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Therefore it is considered to be a matter of choice, which a person of ordinary skill in the art would have found obvious to select one of GaN semiconductor material based diode or organic material for light emitting diode, since both semiconductor LEDs or organic LEDs are considered art recognized equivalents as light source.

Regarding claim 25, Shiang et al. disclose a conversion LED (Figs 1-3) comprising one light emitting diode (OLED) for emitting a primary radiation, and at least one luminescence conversion body (3) for converting the primary radiation into a secondary radiation,(lines 24-32 of column 7) wherein the luminescence conversion body is a polycrystalline ceramic body formed by sintering (lines 57-58 of column 16)) individual base crystallites (lines 24-55 of column 16) and that is doped by a dopant (Ce) such that the polycrystalline ceramic body acts as luminescent material by virtue of at least of the base material (YAG) being activated by the dopant (lines 24-61 of column 7), wherein the ceramic body has a ceramic density of above 90% and wherein the ceramic body is translucent to both the primary and secondary radiation (lines 36-47 of column 4), wherein the ceramic body comprises at least one optical element (see elements 4 of Fig 3) for influencing a beam path of the primary radiation and a beam path of the secondary radiation (lines 11-27 of column 5),wherein the optical element is disposed at one surface section of the ceramic body, said surface section being formed as a lens (see Fig 3).

But Shiang et al. uses organic material imposed between two electrodes of the light emitting diode instead of using semiconductor materials such as GaN interposed between two electrodes of a light emitting diode.

Light emitting diodes using semiconductor materials such as GaN or organic light emitting diodes both are widely used as light source.

Further, it is noted that applicant's specific semiconductor material for LED does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Therefore it is considered to be a matter of choice, which a person of ordinary skill in the art would have found obvious to select one of GaN semiconductor material based diode or organic material for light emitting diode, since both semiconductor LEDs or organic LEDs are considered art recognized equivalents as light source.

Regarding claims 26-28, Shiang et al. disclose a conversion LED (Figs 1-3) comprising one light emitting diode (OLED) for emitting a primary radiation, and at least one luminescence conversion body (3) for converting the primary radiation into a secondary radiation (lines 24-32 of column 7) wherein the luminescence conversion body is a polycrystalline ceramic body formed by sintering (lines 57-58 of column 16)) individual base crystallites (lines 24-55 of column 16) and that is doped by a dopant (Ce) such that the polycrystalline ceramic body acts as luminescent material by virtue of at least of the base material (YAG) being activated by the dopant (lines 24-61 of column 7), wherein the ceramic body has a ceramic density of above 90% and the ceramic body is translucent to both the primary and secondary radiation (lines 36-47 of column 4), wherein the ceramic body comprises at least one optical element, wherein optical element being formed from a plurality of scattering centers (pores or voids act as scattering center for light ; lines 1-33 of column 5) for influencing a beam path of the primary radiation and a beam path of the secondary radiation.

But, Shiang et al. do not explicitly disclose that the impurity crystallites selected from the group consisting of aluminum oxide, titanium oxide, yttrium aluminum garnet, yttrium oxide and combination within the ceramic body are also the scattering centers.

However, Shiang et al. disclose ceramic materials comprising alumina, yttria or YAG (see lines 59-62 of column 4) and further teach that by controlling void content and impurity crystallites present in one surface of the ceramic, the transmittance of the ceramic material can be controlled (lines 36-47 of column 4). Thus Shiang et al. implicitly teach that voids or pores as well as the impurity crystals selected from the group consisting of aluminum oxide, titanium oxide, yttrium aluminum garnet, yttrium oxide and combination are acting as the scattering centers.

Further Shiang et al. uses organic material imposed between two electrodes of the light emitting diode instead of using semiconductor materials such as GaN interposed between two electrodes of a light emitting diode.

Light emitting diodes using semiconductor materials such as GaN or organic light emitting diodes both are widely used as light source.

Further, it is noted that applicant's specific semiconductor material for LED does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Therefore it is considered to be a matter of choice, which a person of ordinary skill in the art would have found obvious to select one of GaN semiconductor material based diode or organic material for light emitting diode, since both semiconductor LEDs or organic LEDs are considered art recognized equivalents as light source.

Regarding claim 29, Shiang et al. disclose that the luminescent material comprises a cerium-doped yttrium aluminum garnet (lines 29-31 of column 7).

Regarding claims 31, 33-34, Shiang et al. disclose a conversion LED (Figs 1-3) comprising one light emitting diode (OLED) for emitting a primary radiation, and at least one luminescence conversion body (3) for converting the primary radiation into a secondary radiation,(lines 24-32 of column 7) wherein the luminescence conversion body is a polycrystalline ceramic body formed by sintering (lines 57-58 of column 16)) individual base crystallites (lines 24-55 of column 16) and that is doped by a dopant (Ce) such that the polycrystalline ceramic body acts as luminescent material by virtue of at least of the base material (YAG) being activated by the dopant (lines 24-61 of column 7), wherein the ceramic body has a ceramic density of above 90% and wherein the ceramic body is translucent to both the primary and secondary radiation (lines 36-47 of column 4), wherein the ceramic body (3) comprises a carrier which only includes base crystallites and a layer which is activated by a dopant, where the layer is located on a front side of the ceramic body and the dopant is distributed inhomogeneously within the base material by a decrease of the dopant concentration toward interior (lines 49-58 of column 21).

But Shiang et al. uses organic material imposed between two electrodes of the light emitting diode instead of using semiconductor materials such as GaN interposed between two electrodes of a light emitting diode.

Light emitting diodes using semiconductor materials such as GaN or organic light emitting diodes both are widely used as light source.

Further, it is noted that applicant's specific semiconductor material for LED does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Therefore it is considered to be a matter of choice, which a person of ordinary skill in the art would have found obvious to select one of GaN semiconductor material based diode or organic material for light emitting diode, since both semiconductor LEDs or organic LEDs are considered art recognized equivalents as light source.

Regarding claim 32, Shiang et al. fails to disclose the thickness of the dopant layer being few millimeters, however, disclose the variation of dopant layer thickness by having graded doping inside the coupler so as to improve light extraction efficiency (lines 49-65 of column 21). Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to find an optimum value of dopant layer being few millimeter, since it has been held that discovering an optimum value of a result, effective variable involves only routine skill in the art.

Regarding claim 36, Shiang discloses that the scattering centers are disposed at one surface section of the ceramic body (Fig 1 shows corrugation 4 acts as scattering center for irregular pattern, disposed on one surface of the output coupler).

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shiang et al. as applied to claim1 above, and further in view of Wickstrom et al. (GB 2325080) of record.

Regarding claim 35, Shiang et al. disclose a conversion LED (Figs 1-3) comprising at least one light emitting diode (OLED) for emitting a primary radiation, and at least one luminescence conversion body (3) for converting the primary radiation into a secondary radiation,(lines 24-32 of column 7) wherein the luminescence conversion body is a polycrystalline ceramic body formed by sintering (lines 57-58 of column 16)) individual base crystallites (lines 24-55 of column 16) and that is doped by a dopant (Ce) such that the polycrystalline ceramic body acts as luminescent material by virtue of at least of the base material (YAG) being activated by the dopant (lines 24-61 of column 7).

But Shiang et al. fail to disclose that the LED and the luminescence conversion body are an integral body, the integral body comprises one or two arms and a stub, with at least one arm serving as a radiation generator for the LED and the stub providing a doped layer which is activated by the dopant, and the primary radiation is guided into the stub.

However, in the same field of LED, Wickstrom et al. disclose an integral body of ceramic material and the LED (see Fig 1) comprises one arm (24) and a stub (16) with at least one arm serving as a radiation generator for the LED (LED is provided on the arm (24) and the radiation is guided through the stub (16) since the device is an edge emitter (see lines 3-9 of page 1and the abstract) such integral body reduces the size of the device.

Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide an integral structure of optical device and the LED as taught by Wickstrom et al. in the device of Shiang et al. so as to reduce the size of the device.

Further, Shiang et al. uses organic material imposed between two electrodes of the light emitting diode instead of using semiconductor materials interposed between two electrodes of a light emitting diode.

Further, it is noted that applicant's specific semiconductor material for LED does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Therefore it is considered to be a matter of choice, which a person of ordinary skill in the art would have found obvious to select one of semiconductor material for light emitting diode or organic material for light emitting diode, since both semiconductor LED or organic LEDs are considered art recognized equivalents as light source.

Allowable Subject Matter

Claims 30 & 38 are allowed being rewritten in independent form including all the limitations of base claim and any intervening claims.

Claim 37 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

The reasons for the indication of allowable subject matter are presented in previous office action.

Response to Arguments

Applicant's arguments filed 7/18/2008 have been fully considered but they are not persuasive.

Applicant continues to argue that "those unskilled in the art frequently refer to an OLED as an organic light emitting diode, and arguing that OLED is not a diode, rather an illuminator that includes one or more organic light emitting layers are not diode".

In response, examiner, respectfully present following definitions for inorganic LED and organic LED from those skilled in the art:

http://lighting.sandia.gov/XlightingoverviewFAQ.htm#led

> **What is a semiconductor LED (light emitting diode)?**
>
> A light emitting diode (LED) is a semiconductor diode that emits light of one or more wavelengths (colors). A diode is a device through which electrical current can pass in only one direction. The electrical current injects positive and negative charge carriers which recombine to create light. The diode is attached to an electrical circuit and encased in a plastic, epoxy, resin or ceramic housing. The housing usually consists of some sort of covering over the device as well as some means of attaching the LED to a source of electrical current. The housing may incorporate one or many LEDs. An LED is typically <1 mm^2 in size, or approximately the size of a grain of sand. However, when encased in the housing, the finished product may be several millimeters or more across.
>
> **What is an *organic* LED (OLED)?**
>
> **Because the vast majority of LEDs use inorganic semiconductors, the acronym LED normally refers to inorganic-semiconductor-based LEDs. Some LEDs use organic semiconductors (carbon-based small molecules or polymers), and the acronym OLEDs refers to these organic-semiconductor-based LEDs. They are similar to inorganic-semiconductor-based LEDs in that passing an electrical current through an OLED creates an excited state that can then produce light.** OLEDs are less expensive than LEDs, in part because they do not need to be crystalline (or "defect free"). Hence, their fabrication processes are more forgiving, and they can even be applied as large-area coatings on curved, flexible surfaces. However, it is likely that OLEDs will be too fragile to sustain high electrical current density, hence their light output per unit area may be limited. For these reasons, OLEDs may target applications compatible with broad-area light sources, while LEDs target applications compatible with small-area (point-like) light sources. This FAQ sheet, and this SSL website as a whole, is concerned primarily with inorganic-semiconductor-based LEDs for lighting.

This is sufficient declaration to establish that OLED and LEDs are both illuminator and both act as diode. Further, in response to arguments for claim 25, examiner respectfully presents that Fig 3 and specification clearly shows that the corrugation can have regular spacing and sinusoidal shape (lines 64-66 of column 5) which by virtue of its shape represents lens array. An optical element in shape of lens array will act as lens.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is 571-272-2452. The examiner can normally be reached on Monday-Friday 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minh-Toan Ton can be reached on 571-272-2303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Karabi Guharay/
Primary Examiner, Art Unit 2889